

WHAT IS CLAIMED IS:

1. An engine system comprising:
 - a) an intake system through which charge air enters combustion chambers to support combustion of fuel for running the engine;
 - b) an exhaust system, including one or more exhaust gas treatment devices, through which products of combustion pass from the combustion chambers to the surrounding atmosphere;
 - c) a turbocharger having a turbine disposed in the exhaust system and a compressor disposed in the intake system;
 - d) a throttle valve disposed in the exhaust system downstream of both the one or more exhaust gas treatment devices and the turbine for controlling engine back-pressure;
 - e) an EGR flow path for recirculating exhaust gas from the exhaust system to the intake system, including an EGR valve for controlling flow through the EGR flow path, wherein the EGR flow path has a pierce point to the exhaust system upstream of the throttle valve and downstream of both the one or more exhaust gas treatment devices and the turbine; and
 - f) wherein EGR flow path has a pierce point to the intake system upstream of the compressor.
2. An engine system as set forth in Claim 1 in which the exhaust system further comprises a muffler, and the throttle valve is disposed upstream of the muffler in the exhaust system.

3. An engine system as set forth in Claim 1 in which one of the one or more exhaust gas treatment devices comprises a catalyzed diesel particulate filter.

4. An engine system as set forth in Claim 1 further including an EGR cooler disposed in the EGR flow path between the EGR valve and the pierce point to the intake system.

5. An engine system as set forth in Claim 1 in which the throttle valve and the EGR valve are embodied in a device assembled as a unit into the exhaust system downstream of both the one or more exhaust gas treatment devices and the turbine and upstream of a muffler of the exhaust system.

6. An engine system as set forth in Claim 1 in which the throttle valve and the EGR valve are under control of an engine control system via respective actuators for selectively restricting the respective valves to attain desired EGR flow through the EGR flow path.

7. A motor vehicle comprising:

a) an internal combustion engine for propelling the vehicle, including an intake system through which charge air enters combustion chambers to support combustion of fuel for running the engine and an exhaust system, including one or more exhaust gas treatment devices, through which products of combustion pass from the combustion chambers to the surrounding atmosphere;

b) a turbocharger having a turbine disposed in the exhaust system and a compressor disposed in the intake system;

c) a throttle valve disposed in the exhaust system downstream of both the one or more exhaust gas treatment devices and the turbine for controlling engine back-pressure; and

c) an EGR flow path for recirculating exhaust gas from the exhaust system to the intake system, including an EGR valve for controlling flow through the EGR flow path, wherein the EGR flow path has a pierce point to the exhaust system upstream of the throttle valve and downstream of both the one or more exhaust gas treatment devices and the turbine, and a pierce point to the intake system that is upstream of the compressor.

8. A motor vehicle as set forth in Claim 7 in which the exhaust system further comprises a muffler, and the throttle valve is disposed upstream of the muffler in the exhaust system.

9. A motor vehicle as set forth in Claim 7 in which one of the one or more exhaust gas treatment devices comprises a catalyzed diesel particulate filter.

10. A motor vehicle as set forth in Claim 7 further including an EGR cooler disposed in the EGR flow path between the EGR valve and the pierce point to the intake system.

11. A motor vehicle as set forth in Claim 7 in which the throttle valve and the EGR valve are embodied in a device assembled as a unit into the exhaust system downstream of both the one or more exhaust gas treatment devices and the turbine and upstream of a muffler of the exhaust system.

12. A motor vehicle as set forth in Claim 7 in which the throttle valve and the EGR valve are under control of an engine control system via respective actuators for selectively restricting the respective valves to attain desired EGR flow through the EGR flow path.

13. A motor vehicle as set forth in Claim 7 in which the vehicle has an engine compartment at the front of the vehicle and an undercarriage extending rearward from the engine compartment, the engine is disposed in the engine compartment, and the throttle valve is placed in the undercarriage outside and rearward of the engine compartment.

14. A motor vehicle as set forth in Claim 13 in which the throttle valve and the EGR valve are embodied in a device assembled into the vehicle as a unit placed in the undercarriage outside and rearward of the engine compartment.

15. A method for low-pressure EGR control in a motor vehicle internal combustion engine having a turbocharger, the method comprising:

a) controlling engine back-pressure by selectively restricting a throttle valve disposed in an exhaust system of the engine downstream of both one or more exhaust gas treatment devices in the exhaust system and a turbine of the turbocharger in the exhaust system;

b) controlling, in conjunction with control of engine back-pressure, EGR flow to an intake system of the engine through an EGR flow path having a pierce point to the exhaust system upstream of the throttle valve and downstream of both the one or more exhaust gas treatment devices and the turbine and a pierce point to the intake system upstream of a compressor of the turbocharger in the intake

system by selectively restricting an EGR valve in the EGR flow path to achieve desired EGR flow.